

From boatanchors@theporch.com Thu Jun 1 13:17:28 1995
Date: Thu, 1 Jun 1995 08:17:28 -0500
Message-Id: <v01510100abf370c1b554@[132.235.72.11]>
From: weinfurtner@ouvaxa.cats.ohiou.edu (Greg Weinfurtner)
Subject: ? Enamel Copper Wire?

Good day to all!

I've been known to wind up some transformers to repair old rigs with burnt-out windings and I've got some questions that I hope someone 'out there' can answer.

Most recently rewind : A power transformer for a Zenith 755, late 1930's model I found in a roadside dump while "plinkin'" with a .22 . AM Radio with 2.5v filaments at 13 amps! Tube compliment: 56's, 58's, 59's. Yep...it lives and sounds great! (Thanks to KB8TAD fer the schematic...)

Have any of you priced a small piece of enameled copper wire? It is EXPENSIVE! But, I can get a roll of 500' of #12 or #14 bare copper wire for around \$30.00 or so at the local electrical supply house.

Now the BIG QUESTIONS...

1. Have any of you adventurous types ever tried to enamel your own copper wire?
2. Does anyone have a formula for a good coating of copper wire?
3. How is it done at the factories where they make it?

Any other info would be appreciated!

Thanks es 73 de

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*****
*                                     Greg Weinfurtner AEE BSS *
*      NN      N      SSSSSSS      8888888      0000000      Electronic Design Splst *
*      N N      N      S           8      8      0      0      Ohio University Athens *
*      N N      N      SSSSSSS      8888888      0      0      GO BOBCATS! *
*      N      N N           S      8      8      0      0 *
*      N      NN      SSSSSSS      8888888      0000000      "When in trouble, When in *
*                                     doubt, Run in circles, *
*                                     Amateur Radio      Scream and shout." *
*****
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From boatanchors@theporch.com Thu Jun 1 20:33:15 1995
Date: Thu, 1 Jun 1995 15:33:15 -0500
Message-Id: <n1410101801.38659@msmailgw1.arlut.utexas.edu>
From: "rohre" <rohre@arlut.utexas.edu>
Subject: RE: ? Enamel Copper Wire?

Greg and the group,

Enameling copper wire is tricky if you are going to handle any significant voltage as the uniformity of the coating is the key to success. I would imagine they bulk coat the copper after cleaning, and quickly enough that oxidation of the copper does not contaminate the enamel, and mar adhesion. They would have to continuously move the wire through the enamel perhaps in a vertical coater, around a pulley and back out to have a uniform amount get on all radii of the wire. Probably the enamel is kept a constant or special temperature. One of the hardest bulk processes is coating of magnetic tape, and that is also a process that must be done in motion, and in controlled ovens for the drying, and undoubtedly the wire coating process involves many of those types of delicate steps. Not worth it, nor suggested to be tried at home!! Find a surplus electronics or old radio-TV parts distributor with old stock of copper enamel wire and buy up a supply. A lot of copper enamel wire is turning up at ham swap meets in the Southwest as OT's estates are sold. A lot of copper wire in the electronics field has gone up, I just priced insulated (PVC) hook up wire at over \$53 for 500 feet, and three years ago it was \$20, (16 gauge). I hope we don't precipitate a price run up on enameled wire!!

--Stuart K5KVH

rohre@arlut.utexas.edu

From boatanchors@theporch.com Thu Jun 1 20:47:36 1995

Date: Thu, 1 Jun 1995 15:47:36 -0500

Message-Id: <Pine.ULT.3.91.950601154905.24246A-1000000@dua150.kpt.emn.com>

From: "Barry L. Ornitz" <ornitz@EMNGW1.emn.com>

Subject: Re: ? Enamel Copper Wire?

On Thu, 1 Jun 1995, Greg Weinfurtner wrote:

> Have any of you priced a small piece of enameled copper wire? It
> is EXPENSIVE! But, I can get a roll of 500' of #12 or #14 bare copper wire
> for around \$30.00 or so at the local electrical supply house.

Radio Shack used to carry a small assortment of a few sizes of enameled wire for the experimenter. These were mainly in the medium gauges (#24 or maybe #28?). Electronic distributors like Newark Electronics carry an assortment of enameled wire in small spools in a number of gauges. The only problem with suppliers like these is their minimum order policy. Look under the alternate name of magnet wire. For many applications, THHN insulated wire will probably work (nylon over a thin PVC layer).

Locally, check with motor rewinding shops. They usually stock sizes #20 and larger. Many carry the small gauges too. Expect to buy it by the pound here, but this should not be a problem with #12 or #14. A pound of #40 will go a lonnnnnng way! :-)

> Now the BIG QUESTIONS...

> 1. Have any of you adventurous types ever tried to enamel your own copper
> wire?

Why bother? It is so readily available if you just look in the right places. I am not trying to flame anyone here but the question of finding ordinary sizes of enameled wire is, to me, like asking where to buy resistors. Asking about who manufactures Litz or resistance wire or finding the square cross-sectional wires for special applications is a little different. ANY town with a motor rewinding shop should have #12.

>2. Does anyone have a formula for a good coating of copper wire?

If you only need a few feet of a small gauge, I suppose you might separate a single strand from a larger cable, or maybe strip the insulation off telephone-type wire. For home use, polyurethane varnish is probably as good an insulating material as anything else you might find readily available. Clear Krylon (tm) acrylic spray applied in several coats will probably work too. Nail polish (usually a cellulose acetate solution) is good for small repairs and is a good substitute for Q-Dope in many applications.

> 3. How is it done at the factories where they make it?

Most commercial wire enamels are actually thermoset resins. They are applied by running the wire through a liquid solution of the resin and curing the resin thermally before the wire is coiled. The viscosity of the solution is adjusted along with the wire speed to control the coating thickness. Alkyd, polyester, polyamide and other chemistries are used.

> Any other info would be appreciated!

When winding small, multifilar transformers with parallel strands of enameled wire, I find it is handy to use Krylon acrylic spray paint to paint each wire a different color. This makes it easy to tell them apart when working with the different windings. Model airplane paint is probably suitable too.

Krylon clear acrylic spray is very handy to use to protect recently polished or silver-plated coils from corrosion. It vaporizes readily upon soldering so you don't have to remove it before soldering if you use a hot iron. It is also useful to spray cloth-covered wire with Krylon before stripping as it makes for cleaner and less-frayed ends. Paraffin wax also works here.

From boatanchors@theporch.com Thu Jun 1 13:46:18 1995
Date: Thu, 1 Jun 1995 08:46:18 -0500
Message-Id: <Pine.SUN.3.91.950601062651.6967A-100000@coyote.rain.org>
From: "Ray L. Mote" <rmote@rain.org>
Subject: Re: Aircraft Restorers

Tony:

I'd prefer you didn't take my comments on this topic personally. Usually, I wait until there have been a number of posts by a group of people before firing a salvo "across the bows" in an attempt to offer a counterpoint to a specific argument being made. In re-reading my post, I can see that there are a number of places where I could have been a bit less inflammatory and a bit more polite; my apologies if I've upset anyone.

Yes, you'll meet with those obstinate folks who are so certain of their own grip on Truth that they fail to acknowledge either the possibility that someone else might possess a tiny part of it, or the need to be open and listen to others. Not much you can do in that case except abandon what is obviously wasted effort and seek a group which might be more productive. Good luck in your searching!

If I come off sounding like a "stuffed shirt", perhaps it's because I am? (I certainly can't rule it out, and pomposity is a charge that even my XYL has leveled at me before. <grin>)

73, Ray, W6RIC

From boatanchors@theporch.com Thu Jun 1 16:47:47 1995
Date: Thu, 1 Jun 1995 11:47:47 -0500
Message-Id: <9506011644.AA29950@ihurry.ih.att.com>
From: Michael.J.Knudsen@att.com
Subject: re: Aircraft Restorers

Well, Hank's posting certainly balanced out the discussion. The standard of workmanship must be pretty high, along with your trust in fellow restorers, when your lovely antique can malfunction and kill you any time it decides to.

Couple of question:

Does anyone gut original radio cases and install modern avionics behind the panel? I got the impression that folks were just leaving the cabinets

empty and mounting the modern stuff up in the cockpit.

If you flew a restored bomber across the Atlantic you might get to use the old radios -- luckily, there's still some HF air comm used there. All SSB of course, which could be a problem for your xmtr.

Still plenty of LW beacons to DF on.

But looks like the vintage radios would be used mostly so a Ham could operate air-mobile on AM and CW. Neat to fly over a couple states and line up QSOs in advance. To get to operate on the aircraft, you'd probably have to help out the restoration crew a lot (at a minimum, restore those radios!) to earn your berth on the plane. And you'd have to grow to trust these guys a lot, cuz if they screw up you purchase some crop land.

As much as we love our radios, they aren't quite as living and breathing and personal as an airplane. --mike k w9nrd

From boatanchors@theporch.com Thu Jun 1 17:28:58 1995

Date: Thu, 1 Jun 1995 12:28:58 -0500

Message-Id: <950601132430_19140358@aol.com>

From: KD0HG@aol.com

Subject: Re: Aircraft Restorers

Hank: I appreciate your taking the time to post your view on BA. I hope I clearly stated that I was not tarring the entire aircraft restoration crowd. We've all met those who were generous with sharing their knowlege and expertise on vintage aircraft- treating others with dignity and respect--but there are is an unfortunatey large minority of individuals within that fraternity who have treated "radio" guys such as myself with utter and appalling rudeness when crossing paths. This "minority" as it is, is large-large enough that it has generated other comments that parallel mine- you've probably seen the ones posted on BAs, and you haven't seen the ones I've received directly that weren't directed to the net for general distribution- "you must have also run into XXX...." or, "...arrogant is too nice a word for the ZZZ group...megalomaniacs is more appropriate..." Clearly, there is a problem significant enough that people all over the country are making the same comments. I have been a licensed pilot for almost 20 years, I have taken aerobatic instruction and flown a number of ragwing vintage aircraft as an aeroclub member - I love the old birds too. I have also run into the same minority in the air, pulling stunts on me like playing "shoot down the Piper" in airspace over Wisconsin, or cutting in front of me and others "on long (fast) final" at uncontrolled airports. I'm sincerely sorry that high octane avgas is so costly that flying a pattern into an airport is unfair to some, but my rented 206 is costing me damn near a hundred an hour and somehow, I retain my courtesy to other pilots. The problem- whatever it is-

is not restricted to dealings with BA radios and I have to stick by my earlier comments....bill, kd0hg

From boatanchors@theporch.com Thu Jun 1 19:55:46 1995
Date: Thu, 1 Jun 1995 14:55:46 -0500
Message-Id: <Pine.3.89.9506011427.A5815-0100000@indy2>
From: "Roberta J. Barmore" <rbarmore@indynet.indy.net>
Subject: re: Aircraft Restorers

Hi!

On Thu, 1 Jun 1995 Michael.J.Knudsen@att.com wrote:
> Well, Hank's posting certainly balanced out the discussion.
> The standard of workmanship must be pretty high [...] when your lovely
> antique can malfunction and kill you any time it decides to.

This is true--and it can do so quite spectacularly. Aircraft mechanics tend to be obsessive about getting it right, though, and if the plane doesn't fall apart, most of the old warbirds would probably glide better than modern passenger planes.

Those two notions *might* offer an explanation for the reason behind gutting (arrrrgh) the old comms gear: it weighs less empty. When the big ol' engines sputter, cough, and decide to expire, the less weight the plane is carrying, the better! (Anyone up for making nice, empty, fiberglass "stage editions" of the original comms gear? You might just find some folks who'd swap!)

However, please let us not forget *our* beloved old iron can kill us, too, if we do not restore it carefully and operate it sensibly, and sometimes even then. (Any questions should be addressed to the estate of Ross Hull). It's not as flashy but dead is dead.

> But looks like the vintage radios would be used mostly so a Ham
> could operate air-mobile on AM and CW. [...] To get to operate on the
> aircraft, you'd probably have to help out the restoration crew a lot
> (at a minimum, resotre those radios!) to earn your berth on the plane.

And that's the rub. The folks restoring and flying those planes are mostly pilots, not hams. They're there to put that critter *in* the air, not *on* it. Our interests must strike them as being dreadfully beside the point! Anyone serious about flying as the radio op had better get as serious about the *flying* part of it as the radio part, or not bother.

(Don't look at me, I have enough trouble on commercial flights--'druther be aboard ship, treading water being a heap easier than

doing same in air!)

> As much as we love our radios, they aren't quite as living and breathing
> and personal as an airplane.

A matter of opinion, I think, though it's true nobody ever flew a
shot-up HRO home on nothing but hope, skill and pure luck.

73,
--Bobbi

From boatanchors@theporch.com Thu Jun 1 11:01:20 1995
Date: Thu, 1 Jun 1995 06:01:20 -0500
Message-Id: <F6155140.F6155155@mail.admin.wisc.edu>
From: TOM.A.ADAMS@mail.admin.wisc.edu
Subject: BA Field Day efforts?

to: boatanchors@theporch.com

Greetings.

The message title says it all. Is anyone out there planning to work Field
Day with BA gear this year?

I don't know for certain if I'll get out this year, but if I do the old Navy
TCS rig is gonna be my weapon of choice, working 160/80/40/30 CW.

As a standby rig, the Kenwood TS-140 silicon box (ARGHHH! UNCLEAR!) will be
coming along, but I doubt it will get used; the TCS will match antennas the
TS-140 couldn't even THINK about using!

73's,

Tom, K9TA

From boatanchors@theporch.com Thu Jun 1 10:58:47 1995
Date: Thu, 1 Jun 1995 05:58:47 -0500
Message-Id: <F6154920.F6154934@mail.admin.wisc.edu>
From: TOM.A.ADAMS@mail.admin.wisc.edu
Subject: Ben Cohn

to: boatanchors@theporch.com

Hello Bill.

AT LAST!!! Somebody besides me who remembers Surplus Row on S. Michigan Avenue in Chicago!

I remember ol' Ben Cohn well. Ditto Joe (Arrow Sales), "Big Pearl" (Gemco), and "Mutt and Jeff" (I forget the name of thier outfit). Then, of course, there were the anti-Castro Cuban Revolutionaries at R+W.

I understand that Ben had a stroke one day in that store, just after opening up for the day. Somebody found him when they came up to the counter with an armload of goodies and asked the price.

Ben continued to operate the place on a very small scale out of his garage for a year or two afterwards.

Tom, K9TA

From boatanchors@theporch.com Thu Jun 1 16:21:11 1995
Date: Thu, 1 Jun 1995 11:21:11 -0500
Message-Id: <2FCE1277@smtpgate.rfc.comm.harris.com>
From: "Gable, Edward M" <emg@rfpo2.rfc.comm.harris.com>
Subject: RE: Coaxial Cable Data (long)

The point of this is ---> I've taken this about as far as I can. Here is what I've done so far, and it's here for your enjoyment. If any of you have data that I am missing, please feel free to hack this table. The only thing I ask is that you copy me the changes.

All of the information your looking for is in the Times Wire and Cable Company "RF Transmission Line Catalog and Handbook." Mine was free (I'm in the business). Try (203) 269-3385

Ed K2MP @ Rochester
emg@rfc.comm.harris.com

From boatanchors@theporch.com Thu Jun 1 16:28:32 1995
Date: Thu, 1 Jun 1995 11:28:32 -0500
Message-Id: <Chameleon.4.01.2.950601100248.jproc@>
From: jproc@worldlinux.com

Subject: RE: Coaxial Cable Data (long)

All that guys sheet had was the RG
>number and impedance, so I set about collecting mil-spec sheets, data
>sheets and anything else I could find.

Paul,

That was a great effort on the coax list. Make sure that you get it into the archives as it will make a good piece of reference material. Two years ago, I needed such a list while trying to identify the different coaxial cables used aboard the ship. I managed get a list sent to me by Canadian Marconi and I will compare it with yours when I get a chance. I will either beef up your list or make a new list complementary to yours. If my memory serves me correctly, the list I have also identifies obsolete coaxial types and the ones which superceded them.

Most recently, I have worked with two of the types mentioned in your. RG-18 is about 1" in diameter and is made with an armoured braid on the exterior. Dielectric is solid polyethylene. The centre conductor is #6 solid copper wire! You could probably run a Voice of America transmitter with this stuff. A 12" length of this cable can be used as an emergency hammer. I can only imagine what it cost per foot when it was new.

The other type which caused me some grief was RG114. This stuff was used inside an antenna multicoupler. It about the size of RG58 coax but the centre conductor is slightly thicker than a human hair. Guess what? - the centre conductor was broken and I had to splice a wire to it!

Regards,

Jerry Proc, VE3FAB
Radio Restoration Volunteer
HMCS Haida
E-mail: jproc@worldlinx.com
Toronto, Ontario

From boatanchors@theporch.com Thu Jun 1 21:23:04 1995
Date: Thu, 1 Jun 1995 16:23:04 -0500
Message-Id: <n1410098830.18523@msmailgw1.arlut.utexas.edu>
From: "rohre" <rohre@arlut.utexas.edu>
Subject: Deutsch Connectors

These are latter day BA connectors, and I have some addresses on the company, which I forwarded to the person posting request. This type of military or commercial multipin connector is sold through the larger electronic distributors like an Allied Radio, or Newark Electronics. Even AN connectors are still in the major catalogs from Bendix/ Amphenol, etc.

It is good for a BA person to be on a continual mailing list from the larger distributors so you can get their annual catalog. With Industry, they are very eager to send catalogs, so it may help to request on a company letterhead if possible. They must have sent 4 copies of the Allied Catalog to every person in my lab this year; we give em away as attendance prizes at the radio club! If you buy some solder or something once in awhile you will stay on their list.

From boatanchors@theporch.com Thu Jun 1 19:07:34 1995
Date: Thu, 1 Jun 1995 14:07:34 -0500
Message-Id: <199506011900.PAA25407@gatekeeper.ddp.state.me.us>
From: afpgreg@gatekeeper.ddp.state.me.us (Paul V. Gregory)
Subject: Don's Morning Post

Ahoy,
Would someone at the helm please repost Don Merz's post regarding the CQ magazine anthology on modifying Command Sets. Specifically I need Don's price for the book. I dumped his post in error.
TNX
--Paul

From boatanchors@theporch.com Thu Jun 1 19:35:59 1995
Date: Thu, 1 Jun 1995 14:35:59 -0500
Message-Id: <199506011927.PAA27345@gatekeeper.ddp.state.me.us>
From: afpgreg@gatekeeper.ddp.state.me.us (Paul V. Gregory)
Subject: Re: Don's Morning Post [2.0]

Ahoy,
Thanks to Tom and Bob, I've got Don's price for the Command Book.
Thanks, guys!

--Paul

From boatanchors@theporch.com Thu Jun 1 20:38:08 1995
Date: Thu, 1 Jun 1995 15:38:08 -0500
Message-Id: <199506012042.NAA12630@mozart.bcit.bc.ca>
From: "Colin Schmutter" <Colin.Schmutter@theporch.com>
Subject: Drake T4XB or C wanted

//////////////////?Colin Schmutter
Networks and Communications
British Columbia Institute Technology
CSCHMUTTER@BCIT.BC.CA

(604) 432-8858

----- Enclosure number 1 -----
I am looking for a Drake T4XB or C transmitter with power supply.

If anyone has one for sale please reply to
cschmutter@bcit.bc.ca

Colin

From boatanchors@theporch.com Fri Jun 2 07:07:16 1995
Date: Fri, 2 Jun 1995 02:07:16 -0500
Message-Id: <199506020711.AAA16054@mozart.bcit.bc.ca>
From: "Colin Schmutter" <Colin.Schmutter@theporch.com>
Subject: Drake TR4C VFO bearing play

Would anyone know how to adjust out play in the VFO shaft bearing of a TR-4C rig?

Mine has a slight but annoying amount of movement on the main tuning control.

Any suggestions would be appreciated.

Colin

cschmutter@bcit.bc.ca

VE7CQH

From boatanchors@theporch.com Thu Jun 1 12:23:19 1995
Date: Thu, 1 Jun 1995 07:23:19 -0500
Message-Id: <199506011215.IAA01624@bear.MOTOWN.GE.COM>
From: "S. Miller" <smiller@motown.ge.com>
Subject: electrical eng. and Mil books for sale

I have the following for sale
Steinmetz Electrical Engineering Series Vols. 1,2,4,5,7 in very good
condition. 1930's or late twenties vintage. Would like to sell the whole set for
60 dollars plus shipping.
Also have JANE's Fighting Ships and Weapon System's 83-84 and 87-88. There are
four of these.
25 dollars each plus shipping. Please respond to smiller@motown.ge.com or
609-722-6078
Thanks
Steve

From boatanchors@theporch.com Fri Jun 2 03:45:42 1995
Date: Thu, 1 Jun 1995 22:45:42 -0500
Message-Id: <199506020344.XAA07156@ccc01du.unity.ncsu.edu>
From: rdkeys@unity.ncsu.edu
Subject: First Boatanchorite On-Line Manual Ready for testing

OK, me has puts about half me foot in me choppers an' has gots the
first goround of the First Boatanchorite On-Line Electronic Manual,
complete with software (hehehehe, don't laugh too hard when you sees
how primitive it is, but what the heck it is a start).

Here is the 00README.LM description file that tells a bit about what
it is. I would like to throw it out for general consumption and
cursing/laughing/swearing at/with/whatever..... (:+}}.....

It is set up as a dos executable file with sources that acts like
the world's teeniest typesetter, but it works actually rather well.

So, Boatanchorites, those interested in the potential of On-Line
Boatanchor manuals, feeds me back some hell'n whatfer, so here goes.....

I will email it directly to those interested to keep the net-volume
down to a reasonable level.

73/Bob/NA4G

+++++

00README.LM

These files comprise the first attempt at a standardized Boatanchor Archive manual format for plain ascii manuals that are going to be place on-line in the Boatanchor archives.

The test first-case manual is the Model LM Heterodyne RF Meter manual. It is about 50 pages long, less schematics. This manual was chosen because it is pre-WWII (1940), the LM has not changed much throughout it production runs, and it was relatively simple and short to type in.

Two schematics (the main meter and the power supply) are planned to be included, if the BA list thinks the project is sufficiently worthy.

The files are:

BABLANK.INP	The blank manual input file, for future use. (You can make your own manual from this with any plain ascii editor --- how about the BC-221 meter manual first general section as a complementary manual no. 2.)
LMMANUAL.INP	The LM manual input file.
LMMANUAL.OUT	The LM manual output printer file.
MYROFF.UUE	The uuencoded DOS .exe file for the formatter.
MYROFF.C	The source code (a freebie) to the formatter.
MYROFF.HOW	The formatter minimum instructions.
MYROFF1.INP	The formatter complete documentation.
MYROFF2.INP	The formater condensed instructions.

NOTE: The thing will run with almost any ``nroff'' style formatter, from the earliest ``roff'' on CP/M to Groff on Unix, with almost no modifications. The only mods probably required are changing the .rm to .ll and the .he to .tl to make it pass through the Troff typesetter. This is why ``myroff'' was chosen --- it is my absolutely trivial mostly minimal least case approximation to the real troff typesetter (:+{}..... It is the most stripped down formatter that I could find, anywhere that would make a reasonable run at it and be a net-freebie.

Shortly I will add to the setup a program that automatically calibrates LM or BC-221 meters if you take a set of points at 100khz intervals. It is in Fortran, just for fun (like 1960's vintage Fortran IV with WATFIV). It will run on the earliest Boatanchor CP/M computers to the latest Linux boxes, so it is also pretty standardized and cut and dried.

Good LUck and Enjoy!

73/Bob/NA4G

``Boatanchor Bob'' the ol' CW fart.....

rdkeys@unity.ncsu.edu

From boatanchors@theporch.com Fri Jun 2 10:15:38 1995

Date: Fri, 2 Jun 1995 05:15:38 -0500

Message-Id: <0a7_9506020333@ima.infomail.com>

From: rherndon@ima.infomail.com (Richard Herndon)

Subject: Hallicrafters

boatanchors@theporch.com

On 17 Apr 95, CCGATE.HAC.COM!jcreid illuminates:

> While searching for some stuff over the weekend, I came across a manual for
> a Radio Industries(i.e. Hallicrafters) TR-20 transceiver. It's available
> for the cost of postage to the first requester I get. Interesting note on
> the radio: All the labeling on the front panel is in English and
> Vietnamese.
> -Jim

My friend, Chuck Dachis, WD5EOG, is a very well-known Hallicrafters collector. He says he is good for the postage on this one if you still have it. I just got around to reading my mail on this holiday weekend.

His address is in the classifieds of any QST and most other mags for years, but is repeated here:

4500 Russell Dr

Austin TX 78745

Any other folks with stuff like Jim, please contact him before tossing it. He is NOT on the internet or BBS land, but will respond to letters or phone calls. He tells me he just came back off a 3k mi trip to see what is out there.

73 de K5FNI (you can also contact me @ rherndon@infomail.com on internet or 1:382/29.3 on FIDOnet)

--- GoldED 2.40

From boatanchors@theporch.com Fri Jun 2 03:16:45 1995

Date: Thu, 1 Jun 1995 22:16:45 -0500

Message-Id: <Pine.HPP.3.90.950601221107.4233A-1000000@fohnix.metronet.com>
From: Joe Spencer <jspencer@metronet.com>
Subject: Hallicrafters SX-110

I have a SX-110 with a broken faceplate and no paperwork...works pretty good though.

Anyone know where I might get a newfaceplate or Manual?

73, Joe

Joe Spencer KK5NA . .
jspencer@metronet.com
QRP ARCI-8781 NORCAL-1179 NORTEX
Arlington, TX

From boatanchors@theporch.com Thu Jun 1 16:12:03 1995
Date: Thu, 1 Jun 1995 11:12:03 -0500
Message-Id: <9506011606.AA29744@ihurry.ih.att.com>
From: Michael.J.Knudsen@att.com
Subject: Re: Heathkit DX60B

If the DX60 has "collectable value" then I wonder what my DX40 would have been worth if I'd hung onto it? The '60 was basically the '40 repackaged in a slick '60s cabinet, with a tad more power (or maybe the same components less conservatively rated :-).

I'd like to have my DX40 and VF-1 back to get on CW, not so much for collector value. I'd probably decide to go ahead and modify something like that and the heck with collector appeal, tho I do deal in classic (wood cabinet) home radios and understand the concept.

I will give credit to an Elmer back then -- the DX40 plate tuning was very touchy on 15 and 10 meters, so I wanted to mount a smaller variable cap in parallel with the main one, with its shaft sticking out the front panel and an extra knob. He warned "Don't put any holes in your front panel, you'll ruin the set's value!" Ironically he meant its resale value to a ham who'd use it, not its "antique" value today, but he had the right idea.

BTW, would PTT and plate mod mods spoil the set's value if they were neatly done thru jacks on the rear chassis apron? Well, I guess holes is holes.

10-15 years ago I could've hand an EICO 720 xmtr at a garage sale for \$15,

and passed it up. Too bad. Neat little CW rig, tho must've run pretty hot in its small box. W0nder if they're worth anything today? --mike k w9nrd

From boatanchors@theporch.com Fri Jun 2 02:07:22 1995
Date: Thu, 1 Jun 1995 21:07:22 -0500
Message-Id: <9506020202.AA17121@unlinf0.unl.edu>
From: djw@unlinf0.unl.edu (daniel wright)
Subject: Hickok 288X

If my memory serves (and more and more it doesn't...) I recall a post or two a few days ago regarding the aforementioned test instrument(?), the Hickok 288x...well I found one in my garage! I wuz wonderin' if the kind souls who were musing over this piece of ju.&..'er..um...vintage technology would mind sending any words of wisdom or discoveries,uses, etc. my way...?? I thank you in advance.....BTW I don't have the manual either..(8-/

73 de Dan -- WA0JRD ..
djw@unlinf0.unl.edu

From boatanchors@theporch.com Fri Jun 2 10:25:01 1995
Date: Fri, 2 Jun 1995 05:25:01 -0500
Message-Id: <n1410059084.73761@cpqm.saic.com>
From: "Bob Scott" <Bob_Scott@cpqm.saic.com>
Subject: Knight Kits & T-50

Tom and group

I do not remember the T-50. Perhaps you could tell me more about it.

My first shack was all Knight-Kit equipment. My very first receiver was an Oceanhopper. I then moved up to the Star Roamer. I used the Star Roamer with the T-150A as my first novice rig. I then bought the R-100A. I still have all the above, but the Oceanhopper is missing its coils and front dial and the Star Roamer needs some work also. It seems that my siblings did some experimenting while I was in the Navy.

I never had any trouble with the T-150A, but then I was only running it at 75 watts crystal controlled. I have not fired it up lately, but plan to.

Anyway, I would be interested in what you could tell me about the T-50. I do not remember ever seeing it so perhaps it was before my time a little.

With Manassas this weekend, perhaps I will spot one.

73, Bob AC4QO Bob_Scott@cpqm.saic.com

From boatanchors@theporch.com Thu Jun 1 21:08:48 1995
Date: Thu, 1 Jun 1995 16:08:48 -0500
Message-Id: <F61G0300.F61G0332@mail.admin.wisc.edu>
From: TOM.A.ADAMS@mail.admin.wisc.edu
Subject: Knight T-50: Say WHAT???

to: boatanchors@theporch.com

Greetings.

A day or two ago, someone gave a hamfest report wherein he reported a
FACTORY BUILT Knight Kit T-50 transmitter.

That's a new one on me; I've never heard of ANY Knight Kit rig being avail-
able as a factory built item.

As it happens, I'm currently writing a piece on the T-50 for submission to
ELECTRIC RADIO, and I'd REALLY like to run this one down.

Was this a case of the seller CLAIMING it was factory built?

Frankly, the point to point wiring of the T-50 is such a rat's nest that I
have a hard time imagining that ANY factory would claim having built it!

The nearly identical Johnson "ADVENTURER" was available preassembled; is it
possibly THAT rig you meant?

At one point I supplemented paper route income by assembling hi-fi gear kits
for clumsy would-be builders in the neighborhood (my biggest was a Heathkit
color TV), but I wouldn't exactly call THAT "factory assembled"! :-)

BTW, by any chance does anyone out there have a junked T-50 which has a
bandswitch knob? My rig is authentic except for that one item.

73's,

Tom, K9TA

From boatanchors@theporch.com Fri Jun 2 02:47:32 1995
Date: Thu, 1 Jun 1995 21:47:32 -0500
Message-Id: <950601224536_19535880@aol.com>
From: Scgilstrap@aol.com

Subject: Re: Knight T-50: Say WHAT???

On 01 Jun 95 TOM.A.ADAMS@mail.admin.wisc.edu wrote:

> A day or two ago, someone gave a hamfest report wherein he reported a
>FACTORY BUILT Knight Kit T-50 transmitter.

That was little ol' me.

> That's a new one on me; I've never heard of ANY Knight Kit rig being
avail-
>able as a factory built item.

I hadn't either. I had to ask again what he said. Yep, factory built he sez.

> As it happens, I'm currently writing a piece on the T-50 for submission
to
>ELECTRIC RADIO, and I'd REALLY like to run this one down.

I regret that I didn't get his name. He had his call letters on his cap but all I

remember is that he was from Zero-land; Missouri to be exact. He was also selling a DX-20 and an SX-73. His buddy had the table next to him and this guy had a display of old military gear (not for sale). The reason I mention

this is in case those of you who were there at the Green Country Hamfest (and you know who you are: Joe, Mike, others?) might remember talking to these guys and maybe got their names and can pass that along to Tom.

> Was this a case of the seller CLAIMING it was factory built?

Well, he was certainly claiming it. I could neither confirm nor deny it.

But I was tempted to buy it. However, memory of the behavior of my T-150 cooled me off somewhat. I didn't know if it would be a smaller version of that charming transmitter.

> The nearly identical Johnson "ADVENTURER" was available preassembled; is it
>possibly THAT rig you meant?

Nope, I had the thing in my hands when he told me it was factory built.

Maybe just a sales pitch? He seemed like a pretty straight-forward guy to me though.

Good luck with your article. I look forward to reading it, especially if you

can fine
some more info about the above mentioned rig.

73 de Stan - WB5LBH

From boatanchors@theporch.com Fri Jun 2 07:01:26 1995
Date: Fri, 2 Jun 1995 02:01:26 -0500
Message-Id: <Pine.3.89.9506020117.A29032-0100000@ozarks>
From: "C. Frank Gilmore" <fgilmore@ozarks.sgcl.lib.mo.us>
Subject: Re: Knight T-50: Say WHAT???

On Thu, 1 Jun 1995 Scgilstrap@aol.com wrote:

> On 01 Jun 95 TOM.A.ADAMS@mail.admin.wisc.edu wrote:
>
> > A day or two ago, someone gave a hamfest report wherein he reported a
> >FACTORY BUILT Knight Kit T-50 transmitter.
>
> That was little ol' me.
>
> > That's a new one on me; I've never heard of ANY Knight Kit rig being
> avail-
> >able as a factory built item.
>

Clip.....much clip....

Perhaps I can shed a bit of light. I had a couple of "factory built" Knights traded in at my store in the 60's. Allied's policy was much like that of E. F. Johnson in the early days...and Heath....if an employee wanted to earn extra money he could assemble kits at home, test them, and put a factory assembled label or in some cases they would just be sold as factory assembled.

I started in the retail amateur radio/electronic business with Burstein-Applebee out of Kansas City. Some of you may remember they had a line of cheap audio amps (actually some of the first commercial stereo amps) and other odds and ends. We were working for such low pay that many of us built them on weekends and they became the 'factory built' models peddled in the catalogs. Many of us had our own little way of coding the units so in the great junk heap in the sky we could recognize

the ones we had built. One was a clone of a popular Eico and I do see it show up on swap tables occasionally and always check to see if it was one of mine.

In 1958 a partially blind young ham who lived about fifteen miles from my folks farm bought a factory built T-50.....I had an Adventurer for a backup rig at the time but he preferred the Knight. It was a nice rig and matching VFO was amazingly good for the era.

73,
Frank
de K0JPJ ex-W5PVX ...-.-

From boatanchors@theporch.com Thu Jun 1 16:26:27 1995
Date: Thu, 1 Jun 1995 11:26:27 -0500
Message-Id: <01HR6UNGSRBM9KN617@RANDB.PPRD.Abbott.Com>
From: KANAMAA%AMGATE%MATRXA@randb.abbott.com
Subject: LTV history

From: Kana, Michael (D9CY)
Date: Thu, Jun 1, 1995 11:24 AM
Subject: LTV history
To: bigboats
Howdy all

I recently picked up an LTV receiver that was made for airborne use. This unit is basically a CEI set that had the dial lamps fed by 24 volts and had a plexiglass (?) front panel painted flat black so when power was applied, the lettering would light up - kinda cool. I was wondering what the history was behind these sets - I figure the aircraft probably had a rack of these things and would fly near the border and listen for interesting traffic. This set has a COR which could activate some type of recording device. The thing is that there is very little info on these sets - manuals are very scarce/non existant. History is even less. My set is one of the earlier models that was mostly nuvistor (6CW4, 7077, etc). I remember some earlier posts on the net about a Collins 51 series receiver that got the LTV treatment. Anyway, just curious - its always neat to speculate about what signals passed through this set ... if they could only talk!

73's de AA9IL
Mike Kana

From boatanchors@theporch.com Thu Jun 1 19:42:31 1995
Date: Thu, 1 Jun 1995 14:42:31 -0500
Message-Id: <MAILQUEUE-101.950601143635.448@vilas.uwex.edu>
From: "Terry O'Laughlin" <OLAUGHLIN@vilas.uwex.edu>
Subject: LTV/Deutsch connectors

I need several power/accessory connectors to fit my LTV/E-systems equipment. I have been informed that they were made by Deutsch (sp?). Can anyone help me out?

73s Terry O' WB9GVB

From boatanchors@theporch.com Thu Jun 1 17:05:15 1995
Date: Thu, 1 Jun 1995 12:05:15 -0500
Message-Id: <9506011649.AA00592@etn.com>
From: doonan@cordmc.dnet.etn.com (Dennis Doonan x6916 (N9VSL))
Subject: Milwaukee, WI BA sources

Hello to all. Thanks to those that provided some suggestions on my 51J3. If you are every in the Milwaukke, WI area, there is a must stop for you. It is Radio Recyclers, 7730 W. National Ave., West Allis, WI 53214. (414)771-7121. It is run by WK9Q.

I have no claim in the business, other than being a repeat customer. The stock is always changing. There is a Motorola R390A, a Collins 75A1, Drake, Hammarlund, etc. Inventory changes daily. Prices are not dirt cheap, but there is a 10 day return for cash and a 30 day repair policy so you do not have to take a chance. He also maintains a want list and provides a phone mail system that describes inventory after hours.

Anyway, stop for a visit or give him a call. I consider the store one of the high points of the midwest.

73 de Dennis, N9VSL

From boatanchors@theporch.com Thu Jun 1 13:02:30 1995
Date: Thu, 1 Jun 1995 08:02:30 -0500
Message-Id: <m0sH9oj-0010NMC@spider.lloyd.com>
From: jml@spider.lloyd.com (Jim Lockwood)
Subject: Re: Need Info: HT-37

At 01:56 PM 5/31/95 -0500, Greg Carter wrote:

>I recently acquired a Hallicrafters HT-37 in pretty good shape and would
>like to restore it for use with an SX-101 that I have on hand.

This will be a nice station. The HT-37 audio is very smooth and easy to

listen to.

>The problem
>is that it is minus the power transformer.

Folklore and conventional wisdom says this is a common problem with HT-37s and with HT-32s.

>Any suggestions out there as to
>where I might find a suitable replacement (cheaper than the \$145 that
>Peter Dahl wants) ??

The low budget approach to getting the rig on the air would be to install a means of connecting the HT-37 to a general purpose, external supply, such as the Heath HP-23. Prices for these supplies vary all over the map, but are generally reasonable and much less than a replacement transformer.

As anecdotal evidence that this technique works: I have a Gonset GSB-100 that is missing its power transformer (seems that Gonset underspecified their transformers too). I made an umbilical cable, complete with 11 pin connector that connects to the Gonset and plugs directly into the HP-23. Minor tweaks to get the bias right, and I was on the air. Works fine. Hey, I could even hook this to my HP-13 DC supply and take the Gonset mobile!!

But back on the matter of the HT-37..... I have seen one HT-37 with a Peter Dahl transformer and I was impressed with the size of the Dahl transformer. It may not mean a thing that the Dahl transformer seemed larger than the original hallicrafters transformer. If it does, though, then I'd bet that transformer failures would be nothing but a memory.

One other thing. In the HT-37 operations manual, (and in the HT-32 manual), there is a caution that may relate to (avoiding) transformer failure. It says that when turning the transmitter off, one should pause briefly in the STANDBY position, before turning the function switch to the OFF position. FWIW....

73,

Jim - km6nk

From boatanchors@theporch.com Thu Jun 1 14:47:04 1995
Date: Thu, 1 Jun 1995 09:47:04 -0500
Message-Id: <199506011445.KAA01486@shiva.shiva.com>
From: John Shriver <jas@shiva.com>

Subject: PTO

OK, I keep seeing mentions of PTO units on Collins receivers, R390's, etc. What does PTO stand for? Precision Tunable Oscillator? Or is the T Tracking or Temperature or something else? Or is it Permeability Tuned Oscillator? (That would apply to a slug-tuned oscillator like the R390...)

From boatanchors@theporch.com Thu Jun 1 15:59:49 1995
Date: Thu, 1 Jun 1995 10:59:49 -0500
Message-Id: <Pine.3.89.9506011024.B2697-01000000@indy2>
From: "Roberta J. Barmore" <rbarmore@indynet.indy.net>
Subject: Re: PTO

Hi, John!

Your second (or was it third?) notion is correct: it's Permeability Tuned Oscillator.

Collins probably didn't invent it--the idea had been around for years--but they were among the first commercial users, with obvious success. There are several advantages: the leadscrew drive has inherently lower backlash (AFAIK) than conventional vernier drives used with 180 or 270 degree variable capacitors, and provides better basic resolution; by varying the pitch of the winding, the tuning rate vs. shaft rotation can be made very linear.

Similar linearization schemes for variable capacitors suffer mechanical disadvantages--not only are they harder to build, the rotor becomes very unbalanced! This isn't too much of a problem for ham-band-only coverage, where the "delta-C" to cover a whole band is quite small in relation to the total tank capacity and a bit of non-linearity is no bother, but you should have a look at a 1920's vintage "straight-line-frequency" variable cap of 140 or 350pF: the rotor is shaped like a much-elongated half-heart, with the shaft 'way over near the wide end, quite awkward. BC receiver mfrs. compromised sometime in the early 1930s on a modified relationship, easily seen in the way the calibration marks are "squeezed up" as they approach the HF end of the band. (Hank van C. has probably got the lowdown on this).

For a "modern" multi-conversion design, in which the tunable L0 always runs over a fixed range, a linear relationship between control-rotation and frequency is highly desirable. If the radio is to have wideband coverage--like an R-388, 51J, etc.--it's just about a must. And there's no easy way to do a mechanical digital readout per the R-390 and cousins without it!

73,
--Bobbi

(For years, I've had two storage drawers for small coils. One is labelled "slug-tuned inductors." The next is labelled "inductors tuned by higher life-forms." <grin> ...The mental image of poor ol' garden slugs in harness, hauling a ferrite core to and fro, always made me giggle! Just *please* don't salt the radio).

From boatanchors@theporch.com Thu Jun 1 18:13:47 1995
Date: Thu, 1 Jun 1995 13:13:47 -0500
Message-Id: <9506011810.AA00662@ihurry.ih.att.com>
From: Michael.J.Knudsen@att.com
Subject: Re: PTO

Good posting by Bobbi, as usual.
Zenith used slug tuning for FM (!) radios shortly after WWII -- don't know if Collins goes back that far. Amazing that slugs were used at such high frequencies while Zenith used plain variable cap gang for AM and SW.

Yes, there were some fascinating designs for "ortho-tonic" and other linearized tuning caps. The best design, by Remler around 1925 and later used by RCA in their superb R32 console, used two sets of square plates in a drawbridge pivot arrangement. Both sets moved equally, so either end could be grounded, or both sides could be "hot" as in the RCA set.

The capacitance varied as the inverse square of knob rotation (gears made both sides rotate, tho RCA used push-rod links), so frequency went up linearly.

Because the plates were a simple square shape, these should have been easy to make in a repeatable fashion to insure good tracking and calibration. But the design died out. I wonder why Hammarlund or someone didn't revive it in the '40s and '50s.

Anyway, Collins seems to have been the one who "linearized" the PTO to the Nth degree. From the '50s onward the PTO was the hallmark of all Collins gear, ham or mil, or so it seemed. After years of trying to align radios to read right across their dials, the 390 is a real treat.

I'm also impressed by the click-stop UHF TV tuners that count digitally from 14 to 83, and that they are never off by more than 0.1. How dey do dat?

Bobbi gives me a new idea for tearing down my R390A's RF section.

I'll just leave a saucer of stale beer next to the set, and the next AM
all the RF slugs will be lying dead but happy on the plate :-)
--mike k w9nrd

From boatanchors@theporch.com Thu Jun 1 18:17:50 1995
Date: Thu, 1 Jun 1995 13:17:50 -0500
Message-Id: <9506011814.AA00666@ihurry.ih.att.com>
From: Michael.J.Knudsen@att.com
Subject: Re: PTO

About Bobbi's description of linear tuning capacitors -- I remember
my Navy HRO (RAS?) had very radically half-heart-shaped plates to
get linear tuning. It came pretty close -- the little calibration curves
labeled on each coil box had pretty straight lines, but you could see some
bend to them. Given the HRO dial reading 0 - 500, you could probably
have predicted a given freq's dial reading pretty closely.
--mike k w9nrd

From boatanchors@theporch.com Thu Jun 1 19:34:30 1995
Date: Thu, 1 Jun 1995 14:34:30 -0500
Message-Id: <MAILQUEUE-101.950601143138.320@vilas.uwex.edu>
From: "Terry O'Laughlin" <OLAUGHLIN@vilas.uwex.edu>
Subject: Re: PTO

> Good posting by Bobbi, as usual.
> Zenith used slug tuning for FM (!) radios shortly after WWII -- don't
> know if Collins goes back that far. Amazing that slugs were used at such
> high frequencies while Zenith used plain variable cap gang for AM and SW.

The R-105/ARR-15/51H3 is a WWII rig with two PTOs, one for the main
tuning and one for the BFO. The 70E series PTO may go back even
further.

73s Terry O' WB9GVB

From boatanchors@theporch.com Fri Jun 2 02:18:48 1995
Date: Thu, 1 Jun 1995 21:18:48 -0500
Message-Id: <113669@w5ddl.aara.org>
From: n5off@w5ddl.aara.org
Subject: R-388 PTO Alternatives

To the gentleman with the R-388 problem.

Butch, K0BS in Rochester Minn repairs these. 507-288-0044

Also, Joe, JosephWP@aol.com has a PTO that has been "Butched" already and I think he still has it available for sale.

65 kcs or so sounds like a lot of range to pull in. I pulled about 13 kcs on mine by removing a turn from the adjustment coil. This limits the future adjustment range, but what the heck, it was off by 13 kcs and couldn't be adjusted anymore.

Don't try to remove the PTO without a book. You should have a book anyway just for grins :-)

Bonne Chance

73 de tom

From boatanchors@theporch.com Thu Jun 1 16:30:50 1995
Date: Thu, 1 Jun 1995 11:30:50 -0500
Message-Id: <Chameleon.4.01.950601112019.dgibbs@meninx.ppp.verdix.com>
From: "R. Dennis Gibbs" <dgibbs@Rational.COM>
Subject: RE: R-388 PTO Questions...

Wow,

This is one of the worst cases of PTO endpoint spreading I have heard of. I don't know if one of the components inside the can can cause or contribute to the endpoint spreading, but it's worth a look. Assuming any capacitors inside are within tolerance, the only way I have heard to correct the problem is to remove some turns off of an inductor inside.

I have heard, however, that using this method to cure endpoint spreading of a large magnitude (and I would certainly describe yours this way) can cause the PTO linearity as it tunes across the band to be disturbed.

Bottom line: My guess is that you may be able to improve it somewhat, but doubt you'll get the original accuracy back.

Also, you did not say anything about the end point adjustment screw. Has it been turned to the end of its range? I have never removed a 51J PTO, but I have heard they are a bear to remove - not at all like the R390/R390A, which is very easy.

Finally, you may be able to contact Mil-Spec Communications or perhaps Rick Mish or one of the other R390A overhaul shops. I know I once got

an unused 51J PTO from Paul Zecchino at Mil Spec communications, but for a ridiculous price - \$125! But then, where else can you find an unused one?

Let us know what happens with this problem.

>
>Greetings y'all,
>I recently acquired an R-388 and am trying to determine the potential of
>repair--
>
>The major problem is the PTO calibration. At 0 KC (main tuning/KC) the
>frequency is actually 65 or so KC off. That is, when the dial reads 7000
>KC it is actually sitting on 7065 KC. This remains true throughout the
>bands (3000 KC is actually 3065 KC, etc..). At the end of the KC range
>
>the calibration is better, only off by 5 KC--that is, at 7990 KC, the
>frequency is off only by about 4 KC, or 7994 KC.
>
>I've read some of Dallas Lankford's tech notes on the 51J series (thanks
>again Don) and it seems that PTOs should be well calibrated throughout
>the 1000 KC range, with about 5 KC spread on the endpoints. This one has
>a 65 KC 'spread' on the bottom range!
>
>Is this PTO a basket case or can it be re-calibrated? If so, is there
>anyone who can do it? Also, what must be done to remove/replace the PTO
>in an R-388. I don't have a tech manual to warn of pitfalls :(.
>
>Is this rig a keeper or is it doomed to inaccuracy? The big draw to the
>Collins rx's is the dial accuracy--which ultimately relies on that 'magic
>can'/PTO.
>
>Could anyone offer some wisdom?!

>
>73, Chris KA8WFC
>
>

From boatanchors@theporch.com Thu Jun 1 18:25:17 1995
Date: Thu, 1 Jun 1995 13:25:17 -0500
Message-Id: <9506011820.AA00730@ihurry.ih.att.com>
From: Michael.J.Knudsen@att.com
Subject: RE: R-388 PTO Questions...

Hmm, sounds like that PTO is not tuning a wide enough range of freqs, meaning the slug's permeability may have decreased over time, as others have reported.

Anyway, I'd guess that if you perform drastic surgery, you want to ADD turns to the coil, not remove them.

At least it seems the inductor needs more inductance at its low-freq end (slug all the way in) and less at the high end (slug out). So maybe either add turns to the end farthest from the slug, or remove turns from the end closest. Either way you'll need to reset the trimmer capacitor, or series inductor, or whatever sets the thing on frequency. --mike k w9nrd

From boatanchors@theporch.com Thu Jun 1 14:38:09 1995
Date: Thu, 1 Jun 1995 09:38:09 -0500
Message-Id: <9506010735.ZM6214@mechcad3.engr.sgi.com>
From: "Mark Glusker" <glusk@mechcad3.engr.sgi.com>
Subject: R390a Manufacturers

Regarding recent comments about R390A modules:

All the modules should be labeled with a manufacturer and contract number. The problem is you often have to remove the module to find the information. I'm not sure if all mainframes have this information, but often an inspection stamp can be a clue if there is not more explicit information.

There are differences between manufacturers. I recently had two RF modules on my workbench at the same time: a Teledyne and an EAC. The EAC had connectors on the coax cables that were much easier to mate and unmate (due to a slightly better design). Also, the yellow plastic insulation on the EAC coax was a different more flexible material. The Teledyne had ceramic wafers on the RF bandswitch, the EAC didn't.

If I had to choose a single R390a manufacturer, I'd go for EAC. They seem to have made some subtle improvements in some mechanical aspects of the design. Additionally, they are among the newest units so they should have all the latest design updates. The EAC modules are easy to verify - there are small inspection stamps (water soluble!) on each module that are visible in a fully assembled radio. The PTO on the EAC units should be made by Cosmos.

Mark Glusker, glusk@engr.sgi.com

From boatanchors@theporch.com Thu Jun 1 14:11:34 1995
Date: Thu, 1 Jun 1995 09:11:34 -0500
Message-Id: <Pine.SUN.3.91.950601070028.10435A-100000@coyote.rain.org>
From: "Ray L. Mote" <rmote@rain.org>
Subject: Re: RME-4350 dial parts needed

Thanks to all who replied on this! I hadn't gotten as far as thinking about the need for different hardness values of the various components, and the possibility of a machinist who caters to hobbyists sounds like a very worthwhile avenue to explore.

I've probably missed some of the replies. Found a number of them in Digest 29 (Wednesday morning edition), but my connection to the outside world is intermittent here due to up/down nature of my provider. They're going thru the teething stages and outages are rather frequent (and disconcerting!). If they're down when the Digest comes out, I'm up Salt Creek without a paddle.

I appreciate all your comments. The -4350 in question is my "second" unit; both are very nice-looking and perform well, but the dial on the second RX has badly-scarred components. I've been tempted to make it a parts unit due to the scarcity of replacement parts, but just didn't have the heart to commit that sort of butchery.

From boatanchors@theporch.com Thu Jun 1 12:38:36 1995
Date: Thu, 1 Jun 1995 07:38:36 -0500
Message-Id: <950601123134_71333.144_DHQ73-1@CompuServe.COM>
From: don merz <71333.144@compuserve.com>
Subject: Sp Proc, Surplus Books FS

Miscellaneous Vintage Radio Gear For Sale

CONTACT: Don Merz, N3RHT: 47 Hazel Drive, Pittsburgh, PA 15228.
412-234-8819 (weekdays, EST or leave a message anytime).
71333.144@compuserve.com

Communications Technology Group Magnum 6 speech processor for the Drake T4XB or C or TR4B or C. It will also work on the the earlier Drake gear with a few mods that are documented in the manual. Good cosmetic and working condition. I just went all through this thing and had it on my T4XB. Styled to match the Drake line. \$45
CQ publication number 122 Surplus Conversion Handbook by Tom Kneitel, 1964. Covers over 100 conversions and surplus topics. Excellent paperback: \$33

CQ publication number 106 Command Sets book. Covers all CQ command set conversion articles. Very good paperback. \$24

Command Set parts sets:

BC-455-% 6 - 9.1mhz, modified FT-230, missing spline drive, covers, tubes and most case screws. 2 unoriginal holes at antenna connector, many electrical mods and poor black paint. Probably not worth restoring. \$5

"5005" 1.5-3mhz Stromberg-Carlson command set receiver, modified FT-230, solder on dyno connector. No unoriginal holes but many paint chips. No covers. Probably restorable without a lot of work. \$15

Unidentified command set parts receiver with 3 antenna connectors at upper left. But no dial, tubes, screws or covers. Several unoriginal holes. Probably not worth restoring. \$5

From boatanchors@theporch.com Fri Jun 2 03:42:56 1995

Date: Thu, 1 Jun 1995 22:42:56 -0500

Message-Id: <F61M3048.F61M3100@mail.admin.wisc.edu>

From: TOM.A.ADAMS@mail.admin.wisc.edu

Subject: T-50s and T-150s

to: boatanchors@theporch.com

Hello Stan.

Thanks for the info. I got another message about preassembled Knight Kits that says the guy's claim MIGHT have been true, but I'd say the odds are agin' it.

At the old 100 N. Western Ave. store in Chicago, you had to pass thru the service department to get to the hamshack. Somewhere in that general area, the writer said he saw somebody assembling a kit or two. Knowing the old Allied gang, I wouldn't be the least surprised if they could be induced (for a price) to assemble a kit for the terminally klutzy, or for those who couldn't do it themselves because of a handicap.

Re. the T-150:

I know EXACTLY what you're saying! I owned two of those monsters, and neither was worth the powder to blow it to hell! And the same goes for the T-60!

The T-50 is a completely different animal tho. For my money, the T-50 was the only decent rig that Knight Kit ever came up with. I ran one for hundreds, if not thousands, of hours while I was a Novice, and for awhile as a General (Heathkit VF-1 VFO was added as soon as the General came along), and in that

time I never had a single failure, except for the one time an 807 PA tube gave up the ghost at 1900 local time on the Saturday night of CW Sweepstakes! No spare, couldn't hustle up one from the locals. Total contest score that year was something like 27 points, as I remember :-)

My current T-50 was obtained as part of a Silent Key's estate being sold at a hamfest. While the troops swarmed over the more sophisticated goodies, the T-50 sat ignored off to one side, looking like a sad, lost puppy. I've always been a sucker for orphans, and three bucks took it home with me, just for old time's sake. I've never regretted the move, because that rig is as much fun now as I remembered it to be.

73's,

Tom, K9TA

From boatanchors@theporch.com Thu Jun 1 22:21:00 1995
Date: Thu, 1 Jun 1995 17:21:00 -0500
Message-Id: <009913D5.2DD620E0.67@ouvaxa.cats.ohiou.edu>
From: post@ouvaxa.cats.ohiou.edu
Subject: Trade Terman for Rider 16 or 19

Ohio University Electronic Communication

Date: 01-Jun-1995 06:13pm EST

To: Remote Addressee (_MX%"boatanchors@theporch.com")

From: Richard Post Dept: Instructional Media
Services
POST Tel No:

Subject: Trade Terman for Rider 16 or 19

I have an excellent (looks as if never used except for original owner to sign the fly leaf) first edition (1943) third impression of Terman RADIO ENGINEERS' HANDBOOK. Will trade for a Rider's volume 16 or volume 19 of Perpetual Troubleshooter's Manual.

Also have an almost as good first edition Jasik ANTENNA ENGINEERING HANDBOOK, 1961 McGraw-Hill for similar trade.

73 de Rich KB8TAD <post@ouvaxa.cats.ohiou.edu>

Received: 01-Jun-1995 06:22pm

From boatanchors@theporch.com Thu Jun 1 23:41:48 1995
Date: Thu, 1 Jun 1995 18:41:48 -0500
Message-Id: <199506012339.SAA21825@uro.theporch.com>
From: "MELUCAS, MARC P." <MELUCAS@wsmc-mis.af.mil>
Subject: RE: TV-7B/U Tube Tester Cost

Gang-

My experience with the DOD DRMO is that the auction list, and a tag on the equipment itself will declare what the "new" cost was when the item was first purchased by Uncle Sam. Why it is posted is beyond me, as the "new" price would seem superfluous. Although it is kinda neat to know that my 19 inch racks (procured through DRMO) for which I paid near nothing, cost Uncle Sugar \$1000 each in 1963 :-).

Marc, KB0JPQ

From boatanchors@theporch.com Fri Jun 2 04:09:10 1995
Date: Thu, 1 Jun 1995 23:09:10 -0500
Message-Id: <199506020408.XAA10958@uro.theporch.com>
From: Jack Taylor <n7oo@hereford.ampr.org>
Subject: RE: TV-7B/U Tube Tester Cost

At 06:40 PM 6/1/95 -0500, MELUCAS, MARC P. wrote:

>

>Gang-

>

> My experience with the DOD DRMO is that the auction list, and a tag
>on the equipment itself will declare what the "new" cost was when the item
>was first purchased by Uncle Sam. Why it is posted is beyond me, as the
>"new" price would seem superfluous. Although it is kinda neat to know that
>my 19 inch racks (procured through DRMO) for which I paid near nothing, cost
>Uncle Sugar \$1000 each in 1963 :-).

>

> Marc, KB0JPQ

I think the main reason the DRMO's list the acquisition cost on their assets

is for book keeping reasons. They can report that they processed X million dollars worth of equipment for that quarter, or whatever. If they totaled the assets in terms of "true value", e.g. 10 - 15 cents on the dollar, it wouldn't sound nearly as impressive. Also, at their auctions and spot bid sales, the psychology of this practice is such it helps in yielding more money from the bidders.

73 de Jack

From boatanchors@theporch.com Thu Jun 1 20:56:19 1995
Date: Thu, 1 Jun 1995 15:56:19 -0500
Message-Id: <199506012054.QAA13612@shiva.shiva.com>
From: John Shriver <jas@shiva.com>
Subject: TV-7B/U tube tester cost!

I was browsing the DoD DRMS auction catalogs on the web that someone pointed to. There is one TV-7B/U for sale in auction 31-5460, lot 98. It is claimed to be unused in good condition, made by Joint Electronics Systems.

What is interesting is the "Total Cost", which is \$1130.00. Doubt that they'll get much of a return on the dollar on this one... (They never do.)

They also estimate the total weight at 10 pounds, which is rather shy of the mark by my memory, TV-7's are heavy.

From boatanchors@theporch.com Thu Jun 1 13:51:01 1995
Date: Thu, 1 Jun 1995 08:51:01 -0500
Message-Id: <Pine.SUN.3.91.950601064616.6967B-100000@coyote.rain.org>
From: "Ray L. Mote" <rmote@rain.org>
Subject: Re: Vibrator Replacement

Tim, you might try an outfit in Florida that makes solid-state replacements for the four-prong vibrators. They don't make replacements for the six-prong double-pole units as it's too difficult to synchronize the solid-state switch circuits:

Antique Automobile Radios
P.O. Box 892
Crystal Beach, FL 34681
(813) 785-8733

From boatanchors@theporch.com Thu Jun 1 15:20:52 1995
Date: Thu, 1 Jun 1995 10:20:52 -0500
Message-Id: <2FCDF685@smtp.eid.af.mil>
From: "Johnston, Les 38EIG/EICM" <johnston@serverg.eid.af.mil>
Subject: RE: Vibrator Replacement

>There is no reason why you can't use chopper transistors in place of the
>vibrator. The objective is to chop up the DC input voltage in order for it
to
>have rise and fall. This chopped up voltage is applied to the input of the
>xformer primary and is induced into the secondary. Its then applied to the
>rectifier and filtered. (Heck, if you could open and close the input
circuit
>fast enough by hand, one could simulate the effect of the vibrator).

Back in the late 50's, I found that I could operate an old 6 VDC car radio from a heavy duty 6.3 V filament transformer by replacing the vibrator with the base from a defunct vibrator. I replaced the guts of the vibrator with one or two jumpers that connected input power (now 6.3 VAC) to the primary of the power transformer. The primary of the power transformer was center tapped and I don't remember if I used one half of the primary or both halves. It did not require any modifications to the radio besides replacing the vibrator with the jumper plug. 6.3 VAC was provided to the input power lead and everything functioned normally.

If operating voltages are too far off, you could use two filament transformers. One connected to the set's power lead to provide filament voltage, and the second, a multi-tapped transformer, connected to the set's power transformer via the vibrator plug (without the jumpers) to provide the input for the B+ voltages.

Since the set operated with no noticeable hum, the frequency of the vibrator must not have been too different from that of the 60 Hz power line.

I mounted the radio and filament transformer under my ham shack operating table where it stayed for several years providing Rock-and-Roll music during non-ham activities.

This method may not work in all applications, but it certainly worked well with that particular radio.

Les Johnston
johnston@serverg.eid.af.mil

From boatanchors@theporch.com Thu Jun 1 18:22:33 1995
Date: Thu, 1 Jun 1995 13:22:33 -0500
Message-Id: <199506011819.0AA02108@bear.MOTOWN.GE.COM>
From: "S. Miller" <smiller@motown.ge.com>
Subject: Vintage books and JANE's for sale

This may be a repost but rumour has it that the (my) servers are acting up.
Steinmetz Electrical Engineering books 1920-1930 vintage, 5 books very
good condition, I think the original post mentioned 70 dollars but I'll listen to
offers.

I also have 4 copies of JANE's reference for Fighting Ships and Weapon Systems
for 1983-84 and 1987-88 for 25 dollars each and again I will listen to offers
I bought an attics worth of books and really cannot store or use everything. Must
sell

so don't be shy about making offers

Thanks

Steve KD2ED

From boatanchors@theporch.com Thu Jun 1 06:26:03 1995
Date: Thu, 1 Jun 1995 01:26:03 -0500
Message-Id: <199506010623.XAA11157@mailhost.primenet.com>
From: nx7u@primenet.com (Scott Townley)
Subject: Wanted: Ham Radio Magazine Issues

A few HR issues to round out the ol' collection.

Hey, it was *definitive* for hollow-state power amplifiers for many, many years!
Contact me directly if you have second copies or whatever that you are
wanting to get rid of.

NEEDED:

1968	Mar	July	Nov
1969	Apr		
1972	Apr		
1979	Jan	Mar	Apr
1980	May	Oct	
1981	*the whole year*		
1982	Jan-Aug	Dec	
1983	Jan-Jul	Sept	
1984-RIP	*entire year needed*		

Seems odd that I have most of the older ones but no newer ones...

And no post is complete without the anecdote...a few years back I was at the
Foothill (CA) flea market, where some guy who was hustling an estate had

what appeared to be a complete Ham Radio set (he at least had a heck of a lot of it!). At the time I wasn't actively collecting them, so I was hunting through them issue-by-issue for any interesting articles listed on the cover. The guy comes over and says "make me an offer for the whole lot...no offer refused". I took him literally and said OK, \$10.

And he said "SOLD"!

Some other guy was within earshot and quickly offered up \$20 for the lot. Not being particularly interested in getting into a bidding war with a guy who obviously was interested, I made the incredible mistake of *walking away*!!!! I've been kicking myself over that blown deal ever since.

It's right up there with the Boonton 250 RX Meter, working (seller was a reputable guy who I'd done business with before) w/ manual and coaxial adapter, for \$20 that I passed up one day.

Oh well, live and yearn.
Thanks for the attention,

Scott Townley
nx7u@primenet.com

From boatanchors@theporch.com Thu Jun 1 20:20:34 1995
Date: Thu, 1 Jun 1995 15:20:34 -0500
Message-Id: <sfcfdc21b.028@egg.nv.doe.gov>
From: David Stinson <DLSTIN@egg.nv.doe.gov>
Subject: What's "M1" mean?

Lots of my SCR-274N Command Set units have "M1" on them somewhere. Some are stamped, some stenciled. I even have one hand painted. Anyone know what the "M1" is all about?

Thanks,
Dave Stinson AB5S/7
Sin City, Nevada

From boatanchors@theporch.com Thu Jun 1 13:00:07 1995
Date: Thu, 1 Jun 1995 08:00:07 -0500
Message-Id: <199506011257.IAA03443@service1.uky.edu>
From: wlfuqu00@service1.uky.edu (Bill Fuqua)
Subject: wtb: HG-10 VF0

I need another HG-10B VFO to go with a HW-16. I'm trying to get several novice rigs fixed up to loan to kids just getting started into amateur radio. This way ,I hope, they will gain CW skills by operating and not just using a computer. Also, does any one have some novice crystals?

Bill ko4ww

William L. Fuqua III P.E.
Department of Physics and Astronomy
CP-177 Chem. Phys. Bldg.
University of Kentucky
Lexington, Ky 40506-0055
E-mail WLFUQU00@POP.UKY.EDU
Phone (606) 257-4155

From boatanchors@theporch.com Thu Jun 1 05:50:07 1995
Date: Thu, 1 Jun 1995 00:50:07 -0500
Message-Id: <199506010548.AAA07050@uro.theporch.com>
From: Jack Taylor <n7oo@hereford.ampr.org>
Subject: WWII gear schematics

Today Bill Beech, NJ7P borrowed a flat bed scanner and brought it home. Some kind soul had sent me TM 11-310, which Bill has taken and re-copied the schematics to fit a standard 8.5 x 11 inch page. TM 11-310 is a WWII era tech manual which describes maintenance on many pieces of communications and test units of the period.

As an experiment, Bill has scanned about a dozen schematics at this time and has placed them on ftp.hereford.ampr.org in the pub/incoming directory. These are all in .GIF format and have file names like bc-312.gif, or bc-221ak.gif, etc.

Bear in mind that some of the original schematics were not of the highest quality to begin with, but the ones I have looked at thusfar appear to be acceptable.

I am using WinGif (under windows) for a viewer which renders the screen images satisfactorily. The schematics will print out on a laser printer nicely in "landscape" mode and cover most of a page. To get this, I open the FILE box in WinGif, click on "printer setup" and choose "landscape". Then, I open the OPTIONS box of WinGif and click on "full page print".

While the schematics in general come out OK, suspect improvement can be made

by going in with a graphics editor and erasing some of the smears as well as trimming the black borders, etc. This will reduce the file size somewhat as well. Currently the file sizes are running approximately 50-80K.

Awhile back on this net, copyright issues were discussed. The consensus was that it's OK to copy material from a govt source. This is the case here where the images are coming from Dept of Army TM 11-310. I'm not sure if it would be suitable for us to scan schematics from commercial manuals though. Anyway, net members who have the interest and capability are welcome to ftp the .gif images. Would appreciate feedback from those that do as to the readability of the schematic(s) and whether any problems were encountered. If the general concensus is that it's worthwhile, Bill will probably scan the rest of the manual and make the diagrams available.

73 de Jack

From boatanchors@theporch.com Thu Jun 1 14:31:09 1995
Date: Thu, 1 Jun 1995 09:31:09 -0500
Message-Id: <199506011427.KAA08533@cc01du.unity.ncsu.edu>
From: rdkeys@unity.ncsu.edu
Subject: Re: WWII gear schematics

> As an experiment, Bill has scanned about a dozen schematics at this time and
> has placed them on ftp.hereford.ampr.org in the pub/incoming directory.
> These are all in .GIF format and have file names like bc-312.gif, or
> bc-221ak.gif, etc.
>
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> images satisfactorily. The schematics will print out on a laser printer
> nicely in "landscape" mode and cover most of a page. To get this, I open
> the FILE box in WinGif, click on "printer setup" and choose "landscape".
> Then, I open the OPTIONS box of WinGif and click on "full page print".
>
> 73 de Jack

Jack..... et al, is there a way to get the schematics to print on a plain dos box to either a laserjet binary printer file or a postscript printer file so that all that has to be done is to have someone download the file as a xxxxx.lj or xxxxx.ps file and merely print it. We need to think about those who run minimal systems and don't run windoz or X11.

In my opinion, all someone should have to do is download the file and print it, not have to do x number of conversions or have specific software to do it with, unless we provide the software as a free package.

It is not that I have anything against windoz, but.....(:+}}....

That is why I put all my stuff in either ascii and provide the programs,
or in printable files that print on any standard laserjet or postscript
printer.

Food for thought.... try to think of how we will be printing things
5 or 10 years from now. My bet is that postscript will be the primary
mode, with HPlaser second. Anything else will be history.

Bob/NA4G

From boatanchors@theporch.com Thu Jun 1 17:32:40 1995
Date: Thu, 1 Jun 1995 12:32:40 -0500
Message-Id: <199506011730.MAA25141@uro.theporch.com>
From: Jack Taylor <n7oo@hereford.ampr.org>
Subject: Re: WWII gear schematics

At 09:28 AM 6/1/95 -0500, rdkeys@unity.ncsu.edu wrote:

>
>Jack..... et al, is there a way to get the schematics to print on a plain
>dos box to either a laserjet binary printer file or a postscript printer
>file so that all that has to be done is to have someone download the
>file as a xxxxx.lj or xxxxx.ps file and merely print it. We need to
>think about those who run minimal systems and don't run windoz or X11.

>
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>print it, not have to do x number of conversions or have specific software
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>
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>
>That is why I put all my stuff in either ascii and provide the programs,
>or in printable files that print on any standard laserjet or postscript
>printer.

>
>Food for thought.... try to think of how we will be printing things
>5 or 10 years from now. My bet is that postscript will be the primary
>mode, with HPlaser second. Anything else will be history.

>
>
>Bob/NA4G

>

Bob brings up an interesting point here regarding image protocols. I'm not familiar enough to predict (with any certainty) what the standard image format will be in a few years. I do see a number of image protocols on the internet today, and I suppose each group that has the capability, is using them. I do know that I don't have postscript here (It's an extra cost option - and not cheap either - for my printer). I suppose I could load ghostscript, which is a free postscript emulator, but I found it to be rather confusing and awkward for me to use, and have given up on it.

I don't know of any operating system software that is "free". Once you have your O/S though, there are a number of image viewers that are either freeware, or shareware. These pgms can be found on local LL BBSes, or by anonymous ftp to oak.oakland.edu in the /pub/simtel/msdos/graphics directory, for those not using windows. I found a shareware dos program called "neopaint" somewhere that does a nice job of format conversion, image editing, and graphics viewing.

The WinGif program I'm using is freeware and can probably be found at OKLAND as well, but in a /win/xxx directory. If not, it can be uploaded to ftp.hereford.ampr.org, as could be neopaint, if there is interest.

Until a better, inexpensive and widely available graphics/printing technique comes along, having these schematics (if they are useable) available in .gif format is better than not having them at all. At least it is a start. If someone wishes to convert them to a different format, and has the tools, it can be done.

To me, the ideal "converter" would be one of them thar 'replicators' seen on Star Trek, where one could just punch up a complete operational KW-1 (with manual) :-)

Someone reported not finding the .gif schematic files at ftp.hereford.ampr.org I just looked and appears Bill, NJ7P has moved them to /pub/hamradio/incoming.

73 es thanks for the comments, de Jack

From boatanchors@theporch.com Thu Jun 1 18:19:48 1995
Date: Thu, 1 Jun 1995 13:19:48 -0500
Message-Id: <01HR6VOTIYMQ02I84E@ECS.UMASS.EDU>
From: MICHAEL@ecs.umass.edu
Subject: Re: WWII gear schematics

>As an experiment, Bill has scanned about a dozen schematics at this time and
>has placed them on ftp.hereford.ampr.org in the pub/incoming directory.
>These are all in .GIF format and have file names like bc-312.gif, or
>bc-221ak.gif, etc.

I'd like to thank Bill and Jack for making these available. Using X11 under Unix, I was able to grab a file, display it, and convert it to PostScript format (using xv) for later printing if I want hardcopy.

John Michael

From boatanchors@theporch.com Thu Jun 1 21:02:26 1995
Date: Thu, 1 Jun 1995 16:02:26 -0500
Message-Id: <199506012102.AA15255@mailstorm.dot.gov>
From: Thomas Bryan <tbryan@mailstorm.dot.gov>
Subject: Re: WWII gear schematics

Hello All,

I recently sent a scanned schematic of a TCS receiver to Jack Ponton. Since there is a discussion going on about this I thought I would share Jack's comments about the procedure.

Jack's comments;

Here are some general comments which might be helpful to people sending digitised images over the net.

The file you sent was a .gif image. uuencoded it was about 150k, decoded to about 111k, which is typical.

If you have a means of converting between formats, e.g. the XV program (from John Bradley at Penn U, which is shareware, \$25 donation), you can convert to ..tif with various types of compression. Using max compression, CCIT level 4 I think, gets it down to a mere 20k unencoded! This doesn't lose you any definition, it just takes out all the white space between the lines.

You can lose definition converting to .ps (PostScript) format with XV if you aren't careful. I did this because we have a postscript printer, and the default method, which creates a 3Mb .ps file, let me read the circuit connections, but not most of the component numbers. When I set the option to preserve maximum detail, I got 15Mb (yes, FIFTEEN MEGABYTES) of postscript which I cannot print because we don't have that much spare disk

space on the print server! (This seemed to be because postscript thought the image was physically very large, about 30" by 40". Was it really that big?) In the end I printed direct from the screen image produced by XV, which is a bit of a kludge and loses some detail, but was OK.

Various lessons are:

- * .tif files, compressed, are very economical for circuits, or anything else with a lot of blank space.
- * .gif files are OK. My tests show that they're more compact than uncompressed .tif images.
- * send images which are physically A4 (or the US equivalent about 8"x11"), since most printers are this size.
- * NEVER send PostScript files.

From boatanchors@theporch.com Thu Jun 1 18:09:37 1995
Date: Thu, 1 Jun 1995 13:09:37 -0500
Message-Id: <v01510108abf34a97531e@[134.121.47.16]>
From: knaack@wsu.edu (Charles Knaack)
Subject: Re: X-ray machines

Greetings,

Sorry to post this this so long after the original thread, but I only get the digest version and am sometimes a few days behind.

We use several x-ray machines here to analyze rocks and there are a few features of x-ray tubes and generators you should be aware of before you start experimenting with them:

1. X-ray tubes are sealed at high vacuum, like all good firebottles, but use a pure beryllium "window" at one end to let the x-rays out (Be is virtually transparent to x-rays). This is the real danger-Beryllium is extremely toxic! Do NOT touch the window! The chemical literature talks about several nanograms of Be being fatal.

2. High voltage. We routinely use a tube current of 50mA @ 50kV (2.5 kW!) on our machines. I can't remember what medical x-ray machines use for an accelerating voltage, but I seem to remember my dentist's machine going up to 70kV. These babies can crank out the DC kilovolts.

Please excuse my non-BA bandwidth. Contact me directly if you have any more questions.

Charles

Charles Knaack
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(509)335-1626, FAX (509)335-7816
knaack@wsu.edu, geolab@mail.wsu.edu
